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Subcontractors	Program Requirements Document	For Additional Info: <a href="http://EDMS">http://EDMS</a>	Effective Date: 06/02/03
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Manual: Subcontractor Requirements

Change Number: 100773

## 1. PURPOSE

This document provides guidance for the implementation of controls for work with and around lead to ensure worker safety and health. This document highlights requirements referenced in the “Source Documents” section, as well as [BBWI](#) requirements. Any applicable regulatory or [BBWI](#) requirements must be followed, with the most stringent requirement being met.

## 2. APPLICABILITY

This document applies to all subcontractors working at the INEEL who perform work with or around lead, as specified in their contract with [BBWI](#). Stricter requirements may be imposed by subcontractors upon their employees or subtier contractors. The requirements of this document must be followed by subcontractors; however, the means of implementation may vary as determined by the subcontractor.

## 3. REQUIREMENTS

### 3.1 General Requirements

- 3.1.1 A competent person shall be assigned to monitor work in compliance with this document.
- 3.1.2 Personnel who will be assigned to work with lead shall be trained to the appropriate level before performing work with lead (see Appendix A, Training Requirements).
- 3.1.3 Personnel working with lead or who may be exposed to lead on any day at or above the *action level* (see def.) shall participate in a baseline medical surveillance program before initial assignment.

### 3.2 Exposure Assessment and Monitoring

- 3.2.1 Initial exposure assessments shall be performed for employees who work with or may be exposed to lead.
- 3.2.2 Until an initial exposure assessment has been completed, protective measures shall be provided (such as respiratory protection, personal protective equipment, change areas, hand-washing facilities, etc.) to protect workers as if they were exposed above the *Permissible Exposure Limit* (PEL) (see def.) as follows:

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- A. IF coatings or paint that contain lead are present during demolition, manual scraping, manual sanding, heat gun application, or power tool cleaning with dust collection systems, or while spray painting with lead paint,  
THEN employees shall be treated as if they were exposed above the PEL,  $500 \mu\text{g}/\text{m}^3$ , but not in excess of ten times the PEL.
- B. IF coatings or paint that contain lead are present during rivet busting, power tool cleaning without dust collection systems, cleanup activities using dry expendable abrasives, moving or removing abrasive blasting enclosures, using lead-containing mortar, or burning lead,  
THEN employees shall be treated as if they were exposed to more than  $500 \mu\text{g}/\text{m}^3$ .
- C. IF abrasive blasting, welding, cutting, or torch burning of lead or lead-containing materials is conducted,  
THEN employees shall be treated as if they were exposed to 50 times the PEL or  $2500 \mu\text{g}/\text{m}^3$ .

**NOTE 1:** *Where there is previous sampling data for lead exposure, and the data were obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the process, type of material, control methods, work practices, and environmental conditions used, this data may be used to satisfy the sampling requirement.*

**NOTE 2:** *Exposure assessment may include full shift, personal samples for each job classification in each work area either for each shift or for the shift with the highest potential for exposure.*

- 3.2.3 IF the initial exposure assessment shows that employees are exposed to airborne concentrations of lead below the action level,  
THEN no additional exposure assessment shall be necessary.
- 3.2.4 IF the initial exposure assessment shows the possibility of an employee exposure at or above the action level,  
THEN representative monitoring shall be conducted for each employee in the workplace who is exposed to lead, according to the following schedule:
  - A. IF exposure  $\geq$  PEL,  
THEN monitoring shall be conducted quarterly until at least 2 consecutive measurements, taken at least 7 days apart, are at or below the PEL, after which monitoring shall be performed as in (B) below.

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- B. IF the exposure is  $\geq$  action level but less than the PEL, THEN monitoring shall be conducted every six months until at least 2 consecutive measurements, taken at least 7 days apart, are below the action level, after which monitoring may be discontinued.

3.2.5 Within five working days after receipt of any monitoring results, each employee and his/her supervisor shall be notified in writing of the employee's exposure results, including information about the level of exposure and a description of corrective actions if the exposure was equal to or greater than the PEL.

3.2.6 Affected employees or designated representatives shall be allowed to observe any monitoring of employee exposure to lead.

3.2.6.1 Observers shall be provided with appropriate personal protective equipment when observation of monitoring requires entry into a regulated area.

3.2.6.2 Observers shall be provided with the following information:

- A. relevant safety and health requirements
- B. an explanation of the measurement procedures
- C. an opportunity to observe all steps related to the monitoring process at the place of exposure
- D. a record of the results obtained or copies of the results when returned by the laboratory.

### 3.3 Work Control

3.3.1 Engineering controls, such as mechanical ventilation, isolation of the process from the worker, and substitution of product to reduce and maintain employee exposures to lead below the PEL, or to the lowest levels feasibly achievable, shall be implemented.

3.3.2 Ventilation systems used to control exposure to airborne lead shall be tested for adequacy at least every three months and within five working days of any change in production, process, or control which may result in change in employee exposure.

3.3.3 Employees shall use engineering controls provided and shall report any problems with the engineering controls to their supervisor.

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3.3.4 When administrative controls are used as a means of reducing employee exposure to lead, job rotation or a stay time schedule shall be established and implemented using the following:

- A. name or identification number of each affected employee
- B. duration and exposure levels at each job or work station where each affected employee is located
- C. any other applicable information that may be useful in assessing the reliability of the administrative controls.

3.3.5 When airborne lead concentrations exceed the PEL during a work activity, written compliance documentation shall be provided, using any of the following:

- A. work order
- B. safe work permit
- C. approved procedure
- D. task sheet
- E. exposure assessment
- F. any other hazard evaluation (see MCP-2863, Construction Work Coordination and Hazard Control).

### **3.4 Respiratory Protection**

3.4.1 Respiratory protection shall be provided to employees as follows:

- A. as interim protection during initial exposure assessments
- B. during the time period necessary to install or implement work controls
- C. in work situations where work controls are not sufficient to reduce exposures to or below the PEL
- D. whenever an employee requests a respirator.

3.4.2 When necessary, the appropriate level of respiratory protection shall be selected in accordance with PRD-2109, Respiratory Protection, and Appendix B of this document.

### **3.5 Protective Work Clothing and Equipment**

3.5.1 Employees who are exposed to lead or lead compounds at the concentrations indicated below shall be provided clean, dry, and intact protective clothing, such as coveralls or similar full-body work clothing, at least at the following frequencies:

- A. weekly to employees exposed above the PEL

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B. daily to employees exposed above 200  $\mu\text{g}/\text{m}^3$ , as an 8-hour time-weighted average (TWA).

3.5.2 Containers with tight-fitting lids shall be provided for lead-contaminated protective clothing when clothing is to be cleaned, laundered, or disposed per PRD-4001, [Waste Management](#).

3.5.3 Containers containing lead-contaminated protective clothing and equipment shall be labeled per PRD-2101, Hazard Communication, or per Appendix C of this document, whichever is more restrictive.

3.5.4 Employees shall wear protective clothing and shall use protective equipment as required by work documentation.

3.5.5 Lead-contaminated protective clothing and equipment shall be disposed of in designated, labeled containers.

### 3.6 Housekeeping

3.6.1 Housekeeping methods shall control the spread of lead contamination.

3.6.2 Compressed air shall not be used for cleaning lead-contaminated surfaces.

3.6.3 Floors and surfaces where lead accumulates shall be cleaned up by HEPA vacuuming or wet methods.

3.6.4 HEPA vacuums shall be emptied in a manner which minimizes the reentry of lead into the work area (see PRD-4001, [Waste Management](#).)

3.6.5 When the use of vacuuming or other equally effective methods for clean up have been tried and found to be ineffective; shoveling, dry or wet sweeping, and brushing may be used upon approval by the [BBWI](#) POC.

### 3.7 Hygiene Practices

3.7.1 Food, beverage, tobacco products, and cosmetics shall not be present or consumed, used, or applied in areas where employees are exposed to lead.

3.7.2 Clean change areas with separate storage facilities to prevent cross-contamination of street clothing shall be provided when airborne lead exposure is equal to or greater than the PEL.

3.7.3 Provide shower facilities for employees with airborne exposure to lead equal to or greater than the PEL.

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3.7.4 Employees shall not be permitted to:

- A. enter eating facilities wearing lead-contaminated protective work clothing or equipment, or
- B. leave the work site wearing any lead-contaminated protective clothing or equipment.

### 3.8 Medical Surveillance and Medical Removal Protection

3.8.1 The subcontractor's occupational medical program shall provide for medical surveillance to be made available to employees occupationally exposed to lead [at or above the action level, for more than 30 days in any consecutive 12 months](#).

3.8.2 Employees occupationally exposed to lead [may](#) participate in the medical surveillance program.

3.8.3 An employee having an exposure to lead at or above the action level and a periodic or follow-up blood sampling test indicating blood lead levels equal to or greater than 50 µg/dl, or a final written medical determination, shall be removed from work with lead for a period recommended by the examining physician.

3.8.4 Affected employees and their supervisors shall be notified of the following, in writing, within five working days after receipt of biological monitoring results that show a blood lead level exceeding 40 µg/dl:

- A. the employee's blood lead level
- B. notification that OSHA standards require temporary medical removal from lead-related work when the employee's blood lead level exceeds 50 µg/dl.

### 3.9 Labels and Signs

**NOTE:** *Additional labeling requirements may be found in PRD-2101, Hazard Communication, and PRD-2022, Safety Signs, Color Codes and Barriers.*

3.9.1 The appropriate signs and labels shall be available and posted, as needed, for work areas and containers.

3.9.2 Signs shall be legible and readily visible.

3.9.3 The [BBWI](#) POC shall recommend the posting of signs and labels warning of the hazard present.

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#### 4. DEFINITIONS

*Action level.* Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air ( $30 \mu\text{g}/\text{m}^3$ ), averaged over an 8-hour period.

*Permissible exposure limit (PEL).* Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of  $50 \mu\text{g}/\text{m}^3$  averaged over an 8-hour period. If an employee is exposed to lead for more than 8 hours in any work day, the PEL, as a time-weighted average (TWA) for that day, shall be reduced according to the following formula:

Maximum permissible limit (in  $\mu\text{g}/\text{m}^3$ ) = 400 divided by hours worked in the day.

#### 5. REFERENCES

##### 5.1 Source Documents

29 CFR 1910.20, Access to Employee Exposure and Medical Records

29 CFR 1910.134, Respiratory Protection

29 CFR 1910.145, Specifications for Accident Prevention Signs and Tags

29 CFR 1910.1025, Lead

29 CFR 1910.1200, Hazard Communication

29 CFR 1926.59, Hazard Communication

29 CFR 1926.62, Lead

DOE Order 5480.4, Environmental Protection, Safety, and Health Protection Standard

DOE Order 5480.10, Contractor Industrial Hygiene Program

##### 5.2 Related Requirements

The following documents may also contain requirements that apply to this activity:

PRD-2022, Safety Signs, Color Codes and Barriers

PRD-2101, Hazard Communication

PRD-2109, Respiratory Protection

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## **6. APPENDICES**

Appendix A, Training Requirements

Appendix B, Respiratory Protection for Airborne Lead

Appendix C, Labels and Signs



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**APPENDIX A****Training Requirements**

Training requirements for employees occupationally exposed to lead.

Level of Exposure	Training Required	Frequency
Incidental, works with solid lead, or exposure $\leq$ action level on any day	Awareness Training  29 CFR 1910.1200 or 1926.59, “Hazard Communication“;  29 CFR 1910.1025 Appendices A and B.	Initial (before job assignment);  When work coordinator, job supervisor, or competent person determines that retraining or additional training is necessary.
Exposure $\geq$ action level on any day, works with lead compounds which may cause skin or eye irritation	Comprehensive Training  29 CFR 1910.1025 and Appendices;  29 CFR 1910.62 and Appendices;  Specific nature of operations which could result in exposure to lead above the action level;  Purpose, proper selection, fitting, use, and limitations of respirators;  Purpose and description of medical surveillance program;  Engineering controls and work practices;  Associated <a href="#">BBWI</a> procedures;  Information on chelating agents;  Information on employee's right of access to records.	Initial (before job assignment);  Annually.

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## APPENDIX B

### Respiratory Protection for Airborne Lead

Respiratory protection for lead aerosols.

Airborne concentration of lead or condition of use	Respirator required <sup>1</sup>
Not in excess of 500 µg/m <sup>3</sup> (10 H PEL)	<ul style="list-style-type: none"> <li>- Half mask air purifying respirator with high efficiency filters<sup>2,3</sup>.</li> <li>- Half mask supplied air respirator operated in demand mode.</li> </ul>
Not in excess of 1,250 µg/m <sup>3</sup> (25 H PEL)	<ul style="list-style-type: none"> <li>- Loose fitting hood or helmet powered air purifying respirator with high efficiency filters<sup>3</sup>.</li> <li>- Hood or helmet supplied air respirator operated in a continuous-flow mode.</li> </ul>
Not in excess of 2,500 µg/m <sup>3</sup> (50 H PEL)	<ul style="list-style-type: none"> <li>- Full face piece air purifying respirator with high efficiency filters<sup>3</sup>.</li> <li>- Tight fitting powered air purifying respirator with high efficiency filters<sup>3</sup>.</li> <li>- Full face piece supplied air respirator operated in demand mode.</li> <li>- Half mask or full face piece supplied air respirator operated in a continuous-flow mode.</li> <li>- Full face piece self-contained breathing apparatus (SCBA).</li> </ul>
Not in excess of 50,000 µg/m <sup>3</sup> (1000 H PEL)	<ul style="list-style-type: none"> <li>- Half mask supplied air respirator operated in pressure demand or other positive-pressure mode.</li> </ul>
Not in excess of 100,000 µg/m <sup>3</sup> (2000 H PEL)	<ul style="list-style-type: none"> <li>- Full face piece supplied air respirator operated in pressure demand or other positive-pressure mode.</li> </ul>
Greater than 100,000 µg/m <sup>3</sup> , unknown concentration, or fire fighting	<ul style="list-style-type: none"> <li>- Full face piece SCBA operated in pressure demand or other positive-pressure mode.</li> </ul>

1. Respirators specified for higher concentrations may be used at lower concentrations of lead.

2. Full face piece is required if the lead aerosols cause eye or skin irritation at the use concentrations.

3. A high efficiency particulate air (HEPA) filter means a filter that is 99.97 percent efficient against particles of 0.3 micron size or larger.

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## APPENDIX C

### Labels and Signs

**Figure 1.** Labels for containers of lead-contaminated clothing and equipment.

**CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD-CONTAMINATED WASH WATER WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.**

**Figure 2.** Sign for work area where exposure may exceed the PEL.

**WARNING  
LEAD WORK AREA  
POISON  
NO SMOKING OR EATING**

**Figure 3.** Label for containers of lead that could become airborne.

**DANGER  
CONTAINS INORGANIC LEAD  
CANCER HAZARD  
HARMFUL IF INHALED OR SWALLOWED  
USE ONLY WITH ADEQUATE  
VENTILATION  
OR RESPIRATORY PROTECTION**